

**Final
Amendment 01 to
FINAL WORK PLAN/SITE SAFETY SUBMISSION
FORT MCCLELLAN, ALABAMA
FOR
PELHAM RANGE SITE INVESTIGATION
(LIMA POND, OLD WATER HOLE, AND FORMER DECONTAMINATION
AREA SOUTH OF TOXIC GAS AREA)**

**VOLUME 2
SITE SAFETY AND HEALTH PLAN**

**Prepared for
U.S. ARMY CORPS OF ENGINEERS, HUNTSVILLE CENTER
Mandatory Center of Expertise & Design Center
Ordnance and Explosive Waste**

**Prepared by
PARSONS ENGINEERING SCIENCE
5390 Triangle Parkway, Suite 100
Norcross, Georgia 30092**

March 2002

Edward L. Grunwald, C.I.H.

SECTION 1.0

INTRODUCTION

This Amendment section contains information specific to activities to be performed at Pelham Range and relies upon the contents of Volume II, Final Site Safety Submission for Fort McClellan, Alabama (September, 2000) for the bulk of the Site Safety and Health Plan. Only those procedures that differ from those presented in Volume II are contained in this Amendment.

SECTION 2.0

SITE DESCRIPTION

2.1 PROJECT LOCATION

This project addresses chemical agent related training sites at Pelham Range, formerly a portion of Fort McClellan, Alabama. Pelham Range is located just to the northwest of the City of Anniston, Alabama in Calhoun County (Figure 2.1). Pelham Range is currently licensed to the National Guard Bureau for use by the Alabama National Guard.

2.2 HISTORY OF PELHAM RANGE

Pelham Range, originally called the Morrisville Maneuver Area, was acquired by the War Department in 1941 just prior to World War II in order to expand the training capacity of Fort McClellan. The entire area is about 22,000 acres. Many organization elements at Fort McClellan conducted training at Pelham Range, including the Army Chemical Training Center, beginning in September 1952. The U.S. Army Chemical Center and School closed in 1973. Firing ranges at Pelham Range continue to be used by the Anniston Army Depot and the Alabama National Guard.

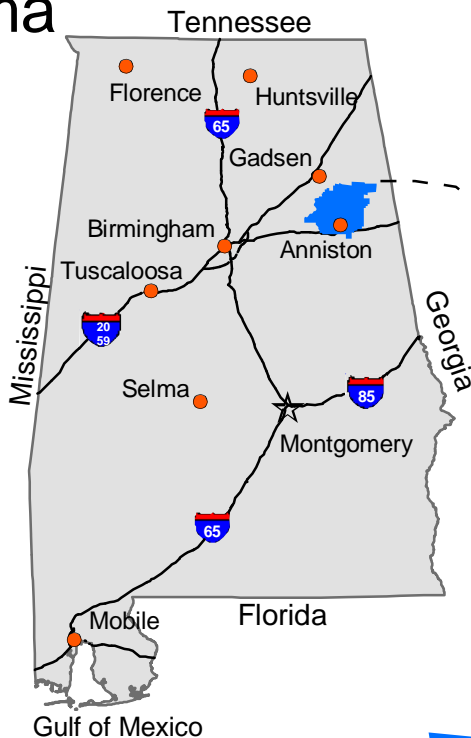
2.3 SITES TO BE INVESTIGATED

Training with chemical warfare agents and related materials has occurred at Pelham Range since World War II. As a result of this training, there are sites at Pelham Range that may have been contaminated with chemical warfare agent. An Archives Search Report (ASR) that focused on Pelham Range sites suspected of containing CWM was completed in February 2001. Three of these sites are the focus of further studies under this Site Investigation. These three sites are Lima Pond, Old Water Hole and Former Decontamination Training Area South of the Toxic Gas Area. For the purposes of this Safety and Health Plan, Table 2.1 summarizes pertinent information on the sites that will have field activities performed for this SI. Table 2.1 lists constituents of concern including chemical warfare agents, other chemicals, and decontaminants that have been used at the sites or nearby that will be monitored for worker safety. Figure 2.2 shows the locations of these sites.

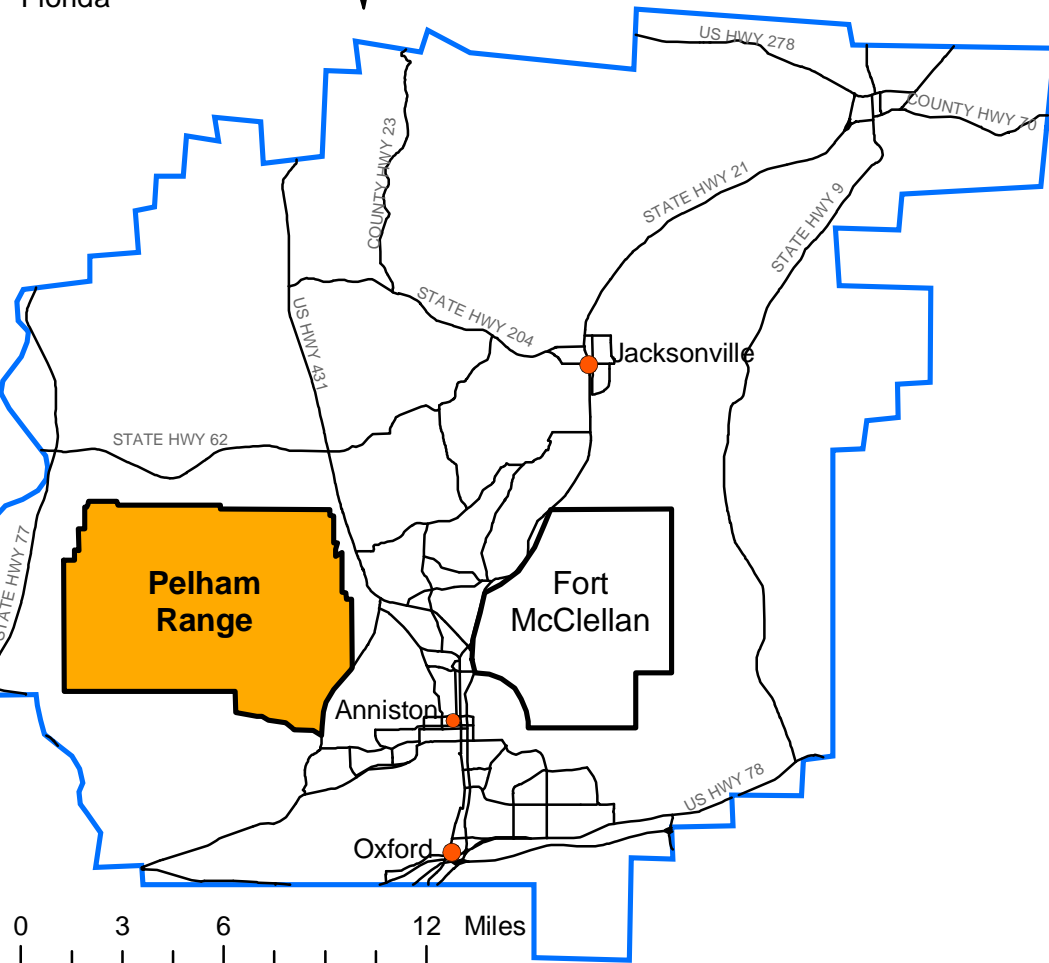
Table 2.1 Site Summary

Site Name	Site Description
Lima Pond (Range L)	This area consists of a small man-made pond (about 0.1 acres) surrounded by an embankment. Lima Pond was used to simulate an A-bomb crater and provide training with radiation detection. The pond is reported to be the disposal site of captured munitions from World War II including CWM. Contaminants of concern (CoCs) for Lima Pond, based on Lima Pond and adjacent sites, include: chemical agents (HD, L and GB), other chemicals (cyanogen chloride - CK, chloropicrin - PS, phosgene - CG) and decontamination chemicals (STB, DS-2 and DANC).
Old Water Hole	This site consists of a natural depression that occasionally fills with water. The site was reportedly used to dispose of conventional and chemical munitions. CoCs at Old Water Hole include: chemical agents (HD, CK, and GB), phosgene (CG) and decontamination chemicals (STB, DS-2 and DANC).
Former Decon Area	This site was used for training in the decontamination of vehicles and the ground surface from chemical agent (HD). Chemical agents suspected of being present at the Former Decon Area include: mustard (H and HD) and decontamination chemicals (STB, DS-2 and DANC).

Alabama



Calhoun County



Legend

- Alabama Cities
- Calhoun County Boundary
- Roads



Pelham Range Site Location Map

Figure 2.1


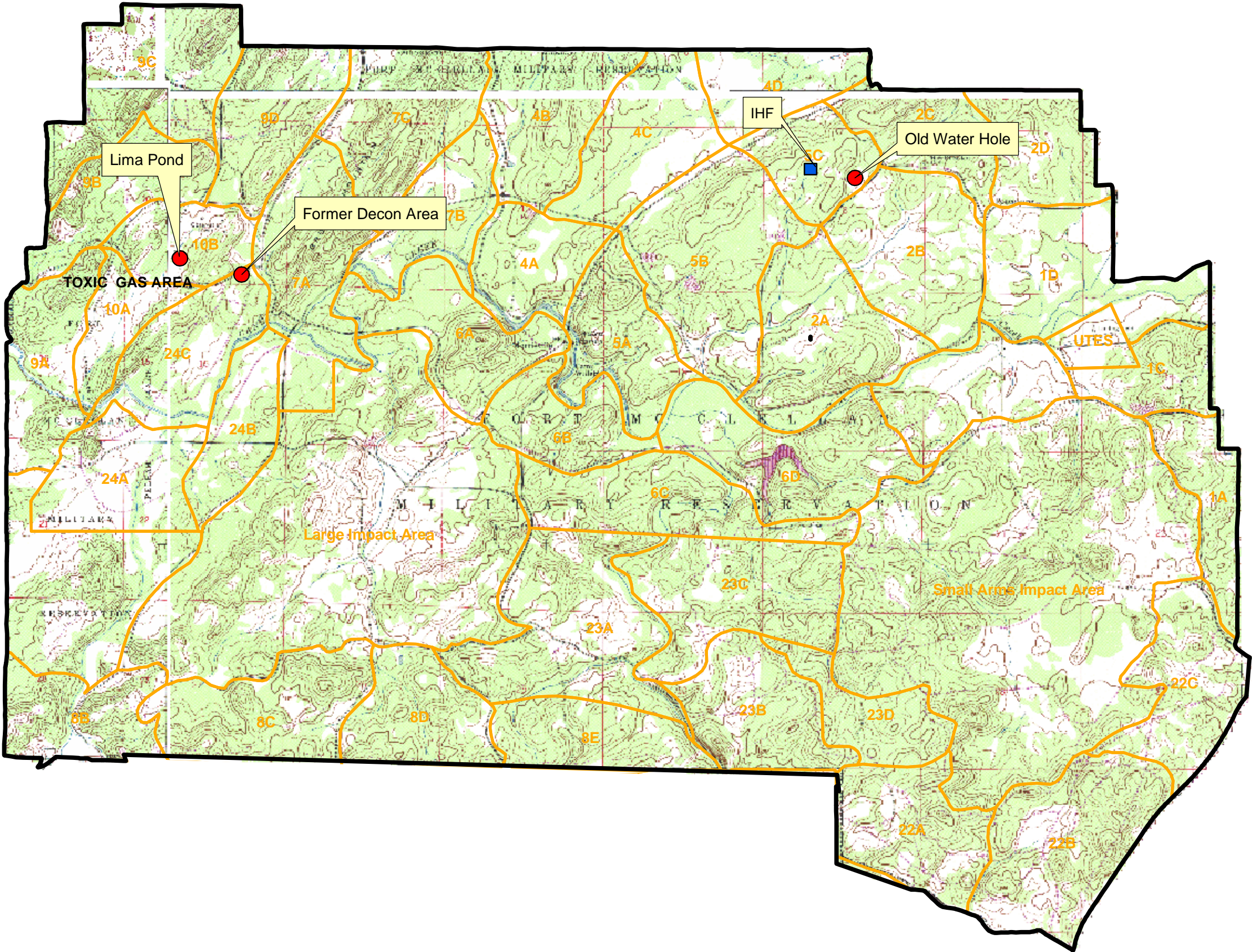
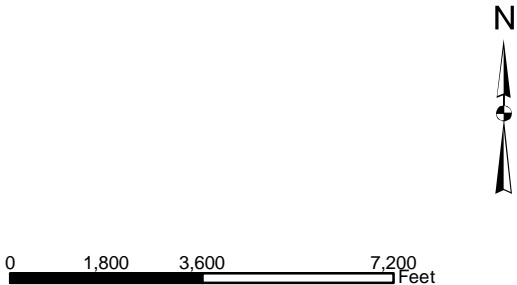
PARSONS ENGINEERING SCIENCE, INC.		U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER	
DESIGNED BY: RED	PELHAM RANGE ANNISTON, ALABAMA CALHOUN COUNTY		
DRAWN BY: RED			
CHECKED BY: RLS	SCALE:	PROJECT NUMBER: 740323	
SUBMITTED BY: RLS	DATE: December 2001	PAGE NUMBER:	
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Figure 2.2

Pelham Range Map



- Legend**
- Site To Be Investigated
 - Interim Holding Facility (IHF)
 - Training Area
 - Pelham Range Boundary



		Revisions			
Symbol:				Date:	Approved:
		Source: USGS 7.5' Topographic Map, 1972			
PARSONS			U.S. ARMY ENGINEERING & SUPPORT CENTER, HUNTSVILLE		
Designed by: MJB		Figure 2.2 Pelham Range Map			
Drawn by: BT					
Checked by: JAC					
Submitted by: JAC					
		Date: August 2002	Page Number: 2-8		Project #: 741671
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SECTION 3.0

PURPOSE AND SCOPE OF PELHAM RANGE CWM SITE INVESTIGATION

The scope of work for the Pelham Range SI is described in Section 1 of the Amendment. Although included as an amendment to the Fort McClellan EE/CA Project, the work being conducted at the Pelham Range sites is a Site Investigation (SI) not an EE/CA. Results from this SI will be documented in a letter report to the U.S. Army Corps of Engineers and other stakeholders.

SECTION 4.0 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

Section 4 of the Volume II, Final Site Safety Submission (September 2000) contains a discussion of the Staff Organization, Qualifications, and Responsibilities. Because of potential radiological hazards at some of the Pelham Range sites, a Radiation Safety Officer (RSO) has been added. The sections below incorporate the RSO into the plan.

4.7 RESPONSIBLE PARSONS SAFETY AND HEALTH PERSONNEL

The following personnel are responsible for Safety and Health on site:

Project Manager:	Joseph Cudney, Parsons, Norcross, Georgia (678-969-2344)
Site Manager:	Jeff Ulmer, Parsons Norcross, Georgia (770-634-8561)
Project Safety and Health Officer:	Ed Grunwald, Parsons Norcross, Georgia (678-969-2394)
Site Safety and Health Officer	Rich Mahan, Parsons (256-310-3367)
Radiation Safety Officer	Ron McConn, Parsons Richland, WA (509-946-0415)
Subcontractors:	UXO – HFA (Human Factors Applications, Inc.) Brush Clearing – Brothers Landclearing Surveying – Sain Associates

Figure 1.8 of Volume I shows the overall program organization for the Pelham Range project, and the other organizations and personnel working with Parsons. Table 4.1 provides a more detailed listing of responsibilities of personnel working on this project.

NOTE: Parsons and subcontractor personnel will be involved in potentially hazardous material activities at this site. The Edgewood Chemical Biological Center (ECBC) will be responsible for on-site sample analysis and air monitoring associated with the Safety and Health aspects related to chemical agents. Parsons and subcontractor personnel will be trained in the Safety and Health hazards associated with the reported CWM buried at the site and the analyses/monitoring being performed by ECBC. Training will be accomplished both as part of initial on-site training and emphasized during daily training. The level of training will be based on methods used and capabilities.

Table 4.1
Responsibilities of Parsons Team Members
Pelham Range, Fort McClellan, Alabama

Title	General Description	Responsibilities
Project Manager	Reports to upper-level management. Has authority to direct response operations. Assumes total control over site activities.	<ul style="list-style-type: none"> • Prepares and organizes the background review of the situation, the Quality Assurance Plan, the SSHP, and the field team. • Obtains permission for site access and coordinates activities with appropriate officials. • Briefs the field teams on their specific assignments. • Uses the Project Health and Safety Officer to ensure that safety and health requirements are met. • Serves as a liaison with public officials.
Project Health and Safety Officer (PHSO)	Advises Project Manager on all aspects of S&H and Supervises SSHO	<ul style="list-style-type: none"> • Provides technical support concerning Safety and Health issues. • Manages/oversees the preparation of the SSHP. • Ensures that the Parsons Safety and Health protocols being followed conform to established industry protocols and standards. • Confirms each team member's suitability for work based on a physician's recommendation. • Conducts field Safety and Health audits to ensure SSHP conformance and Parsons policy compliance. • Certifies that all workers have proper training. • Reports all accidents to Parsons Corporate S&H Manager and investigates each accident or reportable incident.
Site Manager	Responsible for field team operations and safety.	<ul style="list-style-type: none"> • Manages field operations. • Oversees subcontractors' field operations. • Coordinates with the Site Safety and Health Officer in determining protection level. • Enforces site control. • Documents field activities.

Table 4.1 (Continued)
Responsibilities of Parsons Team Members
Pelham Range, Fort McClellan, Alabama

Title	General Description	Responsibilities
Site Safety and Health Officer (SSHO)	Reports to the PHSO on all aspects of Safety and Health on site. Performs day-to-day H&S tasks. Stops work if any operation threatens worker or public health and/or safety.	<ul style="list-style-type: none"> • Ensures that Parsons and all subcontractors perform personal inspections of protective equipment and clothing prior to, during, and after each use. • Ensures that Parsons's and all subcontractors' protective clothing and equipment are properly stored and maintained. • Controls entry and exit at the Access Control Points. • Ensures personnel are monitored for signs of stress, such as cold exposure, heat stress, and fatigue. • Implements the SSHP. • Prior to each work event, conducts inspections to determine if the SSHP is being followed. • Knows emergency procedures, evacuation routes, and telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department. • Coordinates decontamination procedures/provisions for medical care with U.S. Army Corps of Engineers (USACE) personnel. • Notifies USACE of emergency conditions. • Ensures that all required equipment is available. • Advises medical personnel of potential exposures and consequences. • Notifies emergency response personnel by telephone or radio in the event of an emergency. • Maintains logbook for site workers and visitors. • Acts as spokesperson if OSHA inspector arrives on site. • Conducts on-site training concerning pertinent H&S issues and new concerns. • Reports all accidents or H&S incidents to the PHSO and USACE.

Table 4.1 (Continued)
Responsibilities of Parsons Team Members
Pelham Range, Fort McClellan, Alabama

Title	General Description	Responsibilities
UXO Safety Officer	Responsible for UXO/demolition safety during field activities. Reports and advises Parsons Site Manager/SSHO.	<ul style="list-style-type: none"> • Provides UXO safety oversight during intrusive activities conducted. • Conducts UXO safety briefings/training. • Oversees the identification, excavation, movement and disposal of all UXO discovered on the Suspect CWM sites – to ensure only the safest possible procedures are used. • Reports/investigates UXO accidents and incidents. • Advises Site Manager on UXO safety.
Radiation Safety Officer (RSO)	Responsible for radiation safety during field activities	<ul style="list-style-type: none"> • Assures compliance with radiation protection standards ▪ Determine radiation-monitoring procedures, prepares radiation training program, and selects appropriate PPE for ionizing radiation hazard.
Field Team	The work party must consist of at least two people.	<ul style="list-style-type: none"> • Safely completes the on-site tasks. • Complies with Site Safety and Health Plan. • Notifies SSHO/Site Manager or Supervisor of suspected unsafe conditions. • Inspects personal protective equipment prior to, during, and after each use.

SECTION 5.0 JOB HAZARD ANALYSIS

The Job Hazard Analysis for Fort McClellan, including Pelham Range, is discussed in Section 5 of the Volume II, Final Site Safety Submission (September 2000). Table 5.1 presents a site by site listing of planned activities.

**Table 5.1
Anticipated Site Activities
Pelham Range, Fort McClellan, Alabama**

Site Number and Name	Planned Activities
Lima Pond (Range L)	<ol style="list-style-type: none"> 1. Brush clearing 2. Land surveying 3. Geophysical survey to reacquire anomalies 4. Excavate suspect pit locations and collect soil samples as needed to analyze for chemical agent.
Old Water Hole	<ol style="list-style-type: none"> 1. Brush clearing 2. Land surveying 3. Geophysical survey to reacquire anomalies 4. Excavate suspect pit locations and collect soil samples as needed to analyze for chemical agent.
Former Decontamination Training Area	<ol style="list-style-type: none"> 1. Brush clearing 2. Land surveying 3. Geophysical survey 4. Excavate suspect pit locations and collect soil samples as needed to analyze for chemical agent. 5. Sample hand auger borings.

Table 5.2
Hazard Analysis By Site Activity
Pelham Range, Fort McClellan, Alabama

Activity	Hazards	Control Measures
Brush Clearing <ul style="list-style-type: none"> • UXO avoidance • Clearance using hydro-ax and chain saws 	Ordnance/CWM Items	Recognition - Escort and Surface Clearance by EOD Specialist; No intrusive activities (e.g., putting stake into ground) without EOD clearance
	Environmental Hazards: <ul style="list-style-type: none"> • Storms – Tornadoes and Thunderstorms • Heat and Cold Injuries • Snakes/Spiders/Poisonous Plants 	Education as to hazard(s), Avoidance of hazard or injury
	Ionizing Radiation	Monitor using GM counter; Stop work if dose rate exceeds 1mR/h
	Slips, Trips and Falls	Education and Exercise of Caution
	Injury from chain saw	Inspect tools before use. Wear proper PPE (safety glasses, chaps, steel toed boots, hard hat)
Geophysical Survey	Ordnance/CWM Items	Recognition - Escort and Surface Clearance by EOD Specialist; No intrusive activities (e.g., putting stake into ground) without EOD clearance
	Slips, Trips and Falls	Education and Exercise of Caution

Table 5.2 (Continued)
Hazard Analysis By Site Activity
Pelham Range, Fort McClellan, Alabama

Equipment	Inspection Requirements	Training Requirements
EM61 Magnetometer Vehicle, radio, first aid kit, fire extinguisher Chain saw Hydro-ax	Daily inspection of chain saw Inspection and maintenance of hydro ax IAW manufacture's recommendations Radio check	Inspection, maintenance and adjustment criteria for equipment Emergency procedures and safe working practices IAW the SSHP, EM 385-1-1 Section 16 (conducted by SSHO) Radiation protection training performed by RSO or designee) Daily tailgate meeting, radio communications and emergency procedures (conducted by SSHO) OSHA 40-hr HAZWOPER EOD training for ordnance clearance personnel

PHSO

Date

Table 5.2 (Cont'd)
Hazard Analysis By Site Activity
Pelham Range, Fort McClellan, Alabama

Activity	Hazards	Control Measures
Mobilize and Construct Temporary Facilities	Slips, Trips and Falls	Educate and Exercise Caution
	Safety Issues Associated with Construction:	Follow procedures outlined in the Appendices of SSHP. Provide Education/Training SSHO monitors compliance.
	<ul style="list-style-type: none"> • Vehicle and Heavy Equipment Operation • Materials Handling • Electrical Hazards • Noise 	
	Environmental Hazards	Educate and Avoid
	Ordinance and CWM Items	No intrusive construction activities are permitted without utility clearance, geophysical survey, and EOD clearance.
Equipment	Inspection Requirements	Training Requirements
Post hole driller	Inspection and maintenance of tools and equipment IAW with manufacture's recommendations	Knowledge of applicable OSHA requirements relevant to construction of IHF and fence.
Forklift		
Crane	If crane is used wire ropes and rigging must be inspected before use	Forklift operator must have training certificate as required by OSHA

PHSO

Date

Table 5.2 (Cont'd)
Hazard Analysis By Site Activity
Pelham Range, Fort McClellan, Alabama

Activity	Hazards	Control Measures
Intrusive Excavation into Areas and Locations	Slips, Trips and Falls	Housekeeping, Educating, and Exercising Control
	General safety issues associated with tasks included within this activity are:	Follow procedures outlined in the Appendices of SSHP. Education and training will be provided by SSHO and PSHO and monitored by the SSHO.
	<ul style="list-style-type: none"> • Vehicle and Heavy Equipment Operation • Noise • Materials Handling • Pressurized Cylinder Handling (if supplied air respiratory protective devices are used) • Fire Hazards 	
	Excavation and Trenching	Ensure proper shoring or sloping when trench depth exceeds 5 feet
	Ionizing Radiation	Monitor with GM counter; Stop work if dose rate exceeds 1mR/hr. Educate workers on ionizing radiation hazards and monitoring procedures.
	Ordnance and CWM Items: <ul style="list-style-type: none"> • UXO – uncontrolled explosion • chemical agent – dermal contact and/or inhalation 	Education, PPE, Air Monitoring, Decontamination, Backup/Rescue Personnel, Access Controls, and Emergency Response Planning will be used to protect site workers and the public.
	Other (non-agent) Chemical Exposures to chemicals such as: <ul style="list-style-type: none"> • Decontamination solutions - DS-2, HTH or 5.25% calcium hypochlorite, and • Fuels/solvents used for maintenance. • Environmental Hazards 	Education, HAZCOM Program, obtaining/maintaining MSDSs for chemicals used onsite, and proper use of PPE.

Table 5.2 (Continued)
Hazard Analysis By Site Activity
Pelham Range, Fort McClellan, Alabama

Equipment	Inspection Requirements	Training Requirements
Fire extinguishers, first aid kits, communication equipment.	Daily check of: first aid kit, fire extinguisher, and hand tools.	EOD and OSHA 40-hr HAZWOPER training.
Heavy equipment, shovels, picks, trowels.	Daily radio and telephone checks	Backhoe operator must have adequate training and experience with the backhoe model being used
		Competent person training for excavation supervisor
		Daily Tailgate meetings (performed by SSHO)
		Radiation protection training performed by RSO or designee)
	Inspect backhoe (hydraulics, steering, backup alarm, brakes, etc. in accordance with operation manual).	Training in inspection maintenance, calibration, of equipment.
		UXO safety precautions and safe work practices IAW the WP SSHP (performed by SSHO or PHSO).

PHSO

Date

Table 5.2 (Continued)
Hazard Analysis By Site Activity
Pelham Range, Fort McClellan, Alabama

Equipment	Inspection Requirements	Training Requirements
Activity “Hot Box” Monitoring of scrap, soils and other materials	Hazards Contact with and inhalation of chemical agents and industrial chemicals.	Control Measures Education, PPE, Air Monitoring and Decontamination.
Equipment Electrical connections Hot Box	Inspection requirements Wiring and GFCI	Training requirements Chemical material handling 40-hr HAZWOPER

PHSO	Date
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Table 5.2 (Cont'd)
Hazard Analysis By Site Activity
Pelham Range, Fort McClellan, Alabama

Activity	Hazards	Control Measures
Packaging of Agent Contaminated Materials	Contact with and inhalation of chemical agents and Industrial Chemicals.	Education, PPE, Air Monitoring and Decontamination. Use of proper PPE will be required.
Equipment	Inspection Requirements	Training Requirements
None	None	40-hr HAZWOPER DOT HAZMAT training Chemical material handling

PHSO

Date

SECTION 6.0

ACCIDENT PREVENTION

Section 6 of Volume II of the Final Site Safety Submission (September 2000) discusses Accident Prevention practices. Additional accident protection procedures associated with radiation hazards are discussed below.

6.8 RADIATION SAFETY

Workers conducting brush clearing, geophysical surveys and intrusive operations at the Lima Pond and Former Decon Area sites will receive ionizing radiation training. The potential exists that radioactive materials may remain at these sites from the radiological training activities that occurred there and at nearby sites. The contents of this training are specified in Section 7.9 of this Amendment to Volume II of the Final Site Safety Submission. During brush clearing and intrusive operations a Geiger-Mueller counter will be used to monitor for ionizing radiation (gamma photons). Radiation monitoring will comply with the procedures outlined in Section 10.6. If monitoring indicates a dose rate greater than 1mR/hr, operations will be terminated and the area will be taped-off and the Radiation Safety Officer contacted. The continuation of work in an area where the dose rate is greater than 1mR/h must be performed under the direction of the RSO (control methods such as shielding or distance maybe need to be implemented to reduce exposure to acceptable limits).

SECTION 7.0 TRAINING

Section 7 of Volume II of the Final Site Safety Submission (September 2000) discusses Training requirements related to site safety. Specific radiation training required for work at the Pelham Range sites is discussed below.

7.9 RADIATION TRAINING

All personnel working at the Lima Pond and Former Decon Area sites will receive training for ionizing radiation. The training will be performed by the RSO or designee and consist of the following topics:

- The types and nature of the materials anticipated
- Health and safety problems associated with exposure to radiation, including the potential effects of radiation on a pregnant female, the fetus, or embryo
- Precautions and controls used to control exposure
- Proper use of instrumentation
- The Radiation Safety Program

The training will be conducted as part of the site-specific training for these sites.

SECTION 8.0 PERSONAL PROTECTIVE EQUIPMENT

8.1 INTRODUCTION

Parsons staff will work onsite during land surveying, brush clearing, geophysical survey, trenching, and sampling. If at any point in the investigation chemical agents are detected, the level of protection will be re-evaluated by the SSHO/PHSO and the other actions outlined in the Emergency Response Plan, Appendix B will be taken immediately.

8.2 LEVELS OF PROTECTION

Different activities at the site will require different levels of protection. The possible levels of protection to be used at the site are outlined below. Table 8.1 provides criteria for selecting the appropriate level of protection. Table 8.2 shows a list of activities to be performed at the site and the associated Levels of PPE. Additional information concerning personal protective equipment and respiratory protection, can be found in Appendices E, G, I, and L.

8.2.1 Level D

The minimum level of protection required of all personnel at the site is Level D. The following is Level D protection:

- Cotton coveralls or work clothing;
- Sturdy work boots/shoes, steel toe when working around heavy equipment. Geophysical survey personnel will not use steel toe boots;
- Rubber waders should be worn when working in water (i.e. swampy area around old water hole)
- Safety glasses with side shields or goggles when an eye hazard exists;
- Hard hat, when a head hazard exists;
- Chaps for protection during brush clearing operations involving the use of hand held equipment (e.g., weed trimmers, chain saw);
- Leather or canvas work gloves when a scrape/cut hazard exists; and
- Hearing protection, when working around heavy equipment or powered hand tools.

**Table 8.1
PPE Ensemble Selection Criteria**

Level of Protection	Criteria for use
Modified Level D Ensemble	Use modified Level D for initial intrusive work except: If upgrade criteria for Level C, B or A are encountered.
Level C Ensemble	PPE Level for all intrusive operations (within the EZ) if: <ul style="list-style-type: none"> • Industrial chemicals (VOCs) are detected above criteria for Level D or

	<ul style="list-style-type: none"> • If M-40 Mask is being worn and detected agent compounds are below 1x airborne exposure limit (AEL) for mustard, and lewisite and below 10 x AEL for GB; or • No liquids containing CWM are present in the excavation
Level B Ensemble	<p>Upgrade to Level B for personnel performing excavation when:</p> <ul style="list-style-type: none"> • Unusual odors are detected at the EZ; or • Oxygen levels are potentially less than 19.8%; or • Industrial chemicals (VOCs) are detected or indicated above criteria for Level C (detection of CK, PS, or CG above 0.1ppm requires the donning of level B); or • If MSA/North masks are being worn and air monitoring indicates detection of any chemical agent; or • If M-40 mask is being worn and air monitoring indicates detection of potential chemical agent equal to or above 1 AEL for mustard, lewisite, and above 10 x AEL for GB; or • No liquids containing CWM are present in the excavation that present a splash hazard.
Level A Ensemble	<p>Upgrade to Level A for personnel performing excavation when:</p> <ul style="list-style-type: none"> • Liquids containing CWM are in the excavation and there is a splash hazard; or • Air monitoring indicates detection of potential chemical agent above 10 AEL

Table 8.2
Site Activities and Required Levels of Protection

Site Activities	Level(s) of Protection	Notes
Brush clearing	Level D ¹	Eye and hearing protection, gloves and chaps will be worn during brush clearing.
Geophysical Surveys	Level D ¹	
Site Mob/Demob	Level D ¹	
“Hot Box” Monitoring	Level D ¹	
Personnel Assisting in Decontamination	Level C ³ Level B ⁴	Personnel other than TEU will use pressure demand Interspiro supplied air/SCBA In the event of an emergency subcontractor personnel will assist in Level B
Air Monitoring	Modified Level D ² Level C ³	ECBC personnel inside NOSE but outside the 1% lethality will be dressed in Mod D. ECBC personnel inside 1% lethality will be dressed in Level C.
Soil Sampling, Excavation of anomalies based on Geophysics	Modified Level D ² Level C ³ Level B ⁴ Level A ⁵	Worn only until presence of chemical agent(s) is suspected. At first indication of presence of agent, escape APR is donned and work area is evacuated. Air purifying respirator protection is worn if industrial chemical concentrations exceed action levels (refer to Section 10) or (air monitoring indicates HD, L, at concentrations <1x AEL or nerve agent (GB) at concentrations < 10xAEL (M-40 users only)). For backhoe operator and workers in Exclusion Zone -- after any chemical agent detection (for North/MSA APR users) or when air monitoring indicates chemical agent above 1x AEL (HD and L) and < 10 x AEL (GB) (for M-40 users). Only TEU personnel will perform Level A operations after presence of liquid chemical warfare agent has been confirmed, and liquids, or leaking munitions that present a splash hazard.

Notes:

- 1 **Level D** – see Section 8.2.1
- 2 **Modified Level D** – see Section 8.2.2
- 3 **Level C** – see Section 8.2.3
- 4 **Level B** – see Section 8.2.4. *NOTE:* If 3 testing cycles indicate agent greater than the allowable TWA, Level A will be used in lieu of Tyvek F and CPU.
- 5 **Level A** – see Section 8.2.5.

8.2.2 Modified Level D

For intrusive investigation activities (e.g., trenching with heavy equipment or digging geophysical anomalies using hand tools), or other activities considered to have risk of exposure to chemical agents. The following will be considered Modified Level D protection:

- Cotton coveralls or other work clothes;
- Safety boots with rubber boot covers (or TAP boots for TEU);
- North 7600 full-face air purifying respirator with organic vapor/acid gas/ P-100 cartridges (NIOSH approved) or MSA Ultra-twin full-facepiece APR with GME super cartridges/P-100 filter (NIOSH approved) or M40 series mask (TEU/ECBC)-- slung;
- Nitrile gloves for soil sampling, leather or canvas work gloves when a scrape/cut hazard exists;
- Safety glasses with side shields or goggles when an eye hazard exists
- Hard hat (as required when adjacent to heavy equipment); and
- Hearing protection (as required when near heavy equipment).
- NOTE: APR will be donned and worn to exit the work area when observations or air monitoring indicate the presence of a chemical agent.

8.2.3 Level C

- North 7600 full-face air purifying respirator with organic vapor/acid gas/ P-100 cartridges (used when industrial/volatile chemical are the Only Identified Chemical Hazards), MSA Ultra-twin full-facepiece air purifying respirator with GME super cartridges/P-100 filter, or M40 mask (TEU/ECBC);
- Tyvek® F coveralls with hood;
- Chemical protective undergarments (CPUs)
- Inner surgical gloves;
- Outer butyl-rubber gloves;
- Chemical-resistant butyl-rubber safety boots;
- Rubber boot covers or TAP boots (TEU);
- Hard hat (as required when adjacent to heavy equipment); and
- Hearing protection (as required when near heavy equipment).

8.2.4 Level B

- Interspiro positive pressure supplied air/SCBA (used in pressure demand mode);
- Tyvek® F coveralls with hood or Trelleborg suit;
- CPUs with Tyvek® F
- Inner surgical gloves;
- Outer butyl-rubber gloves;
- Chemical-resistant butyl-rubber safety boots;
- TAP boots (TEU) or chemical resistant rubber boot covers;
- Hard hat (as required when working adjacent to heavy equipment); and
- Hearing protection when near heavy equipment.

8.2.5 Level A (TEU Only)

Only TEU personnel will conduct Level A operations when the presence of liquid chemical agent is confirmed.

- Interspiro positive pressure supplied air/SCBA (use in pressure demand mode),
- Trelleborg TRELLCHEM HPS/Responder CSM totally-encapsulated suit or CSM Responder Level A suite,
- CPUs, and
- TAP boots

8.3 RESPIRATORY SELECTION, FIT TEST, AND MAINTENANCE PROCEDURES

The respiratory protection program for Pelham Range sites is the same as that used at Fort McClellan and is in Appendix I of Volume II of the Final Site Safety Submission. This program outlines the requirements and procedures for selecting, fit-testing and maintaining respiratory protection during this project.

8.4 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The PPE Program which will be used at Pelham Range sites is described in Appendix E - Personal Protective Equipment of Volume II. This appendix describes the protective ensembles, testing and inspection of PPE, maintenance, duration of work/rest periods, storage, training and proper fitting, and program evaluation.

SECTION 9.0

MEDICAL SURVEILLANCE AND EMERGENCY MEDICAL SUPPORT

Section 9 of Volume II of the Final Site Safety Submission (September 2000) includes a discussion of the Medical Surveillance and Emergency Medical Support for Pelham Range sites. This support is the same as for the Fort McClellan EE/CA. The hospital for the Pelham Range SI will be Northeast Regional Medical Center in Anniston, Alabama.

SECTION 10

ENVIRONMENTAL AND PERSONAL MONITORING

10.1 AIR MONITORING

Air monitoring will be conducted during subsurface soil sampling (i.e., greater than 6 inches deep), and intrusive excavation or trenching activities. Monitoring will be conducted by ECBC, Parsons subcontractor personnel and Parsons personnel. The purpose of this air monitoring is three-fold:

- To determine the airborne concentrations of contaminants to which personnel working on the site would be exposed without PPE or other control measures, and to evaluate the adequacy of PPE or other control measures used by site workers.
- To determine the airborne concentrations of contaminants being released from on-going site activities and to evaluate the need for additional engineering controls during intrusive trenching or excavation.
- To determine the airborne contaminant concentrations leaving the site during intrusive activities and to evaluate, document and control potential public exposures.

10.2 AIR MONITORING INSTRUMENTS

The air contaminants to be measured include volatile organic compounds (VOCs), and chemical agent vapors. The air monitoring instruments or methods used to evaluate airborne concentrations of these contaminants are indicated below.

10.2.1 VOCs

A photoionization detector (PID) with an 11.7 electron volt (eV) lamp will be used to conduct general VOC monitoring. A benzene detector tube, 0.5/a, will be used to evaluate the benzene vapor component in the breathing zone when the total concentration of vapors in breathing zone, as measured with the PID, exceeds 1 ppm.

10.2.2 Chemical Agents

ECBC will provide near-real time air monitoring for chemical agents (see Appendix G). ECBC has determined that the existing sampling and analysis plan developed for Fort McClellan and presented in Appendix G does not need modification for the Pelham Range site investigation. An email from ECBC attesting to that fact is attached to the end of this volume.

10.3 AIR MONITORING LOCATIONS

Air monitoring will be accomplished at three locations on each site where intrusive activities are ongoing. These locations will include:

10.3.1 Within Exclusion Zone (EZ)

VOCs and chemical agent monitoring will be conducted within the EZ at and around the location of intrusive sampling or investigation activities. Purpose of this air monitoring at the source is to detect any airborne releases of chemical agent as early as possible.

10.3.2 Hotline Monitoring

VOCs and airborne dust measurements will be performed at the hotline (the boundary of the EZ) if EZ monitoring detects constituents above action levels. These measurements will be used to document potential public and PDS personnel exposures and if necessary – take measures to control these exposures (refer to appendix G-1 of Volume II of the Final Site Safety Submission for additional information)

10.4 ACTION LEVELS

The following action levels will be used to control site activities, and potential worker and public exposures.

10.4.1 VOCs

Readings detected on the PID and benzene Drager tubes will be used as outlined below to determine the appropriate levels of protection:

Concentration of VOCs at Breathing Height (5-5.5 ft) *	Required Level of Protection
0 - 10 ppm	Level D
>10- 100 ppm	Level C
>100- 1,000 ppm	Level B
> 1,000 ppm	Stop work; reevaluate activities at site area.

Concentration of Benzene at Breathing Height (5-5.5 ft) *	Required Level of Protection
0 - 1 ppm	Level D
>1 - 50 ppm	Level C
>50 - 1,000 ppm	Level B
> 1,000 ppm	Stop work; reevaluate activities at site area.

10.4.2 Chemical Agent

If any chemical agent is detected in the air at this site, all operations/activities will be closed immediately and the USAESCH Project Manager, the Parsons Project Manager, and the Project Health and Safety Officer will be notified. Section 14 of Volume II of the Final Site Safety Submission contains additional information on communication, notification, site closure procedures and other required actions associated with the detection of airborne chemical agent.

10.5 AIR MONITORING PLAN

Additional information and details of the air-monitoring plan for sites at Pelham Range are contained in the Air Monitoring Plan (Appendix G of Volume II of the Final Site Safety Submission). The specifics of this Air Monitoring Plan (e.g., Chemical Compound, Classification/Description, Organization Responsible for Monitoring, Monitoring Method, Action Level and Action Taken) are summarized in Table 10.1 in this Amendment.

10.6 RADIATION MONITORING

Ionizing radiation will be monitored during brush clearing and intrusive activities at the Lima Pond and Former Decon Area site using a Geiger-Mueller counter or equivalent. For brush clearing and geophysical operations, a single survey will be performed over the ground surface where these activities are to be performed. During intrusive operations, monitoring will be conducted at 2-foot intervals. To perform the monitoring, the GM operator will slowly traverse the area with the probe oriented towards the ground. The probe window should not be more than 3 ft above the ground surface. Locations with count rates twice background will be flagged. Barrier tape will be placed around the perimeter of areas where the dose rate is above 1 mR/h. Entry into an area where the dose rate is above 1mR/h is permitted only under the direction of the RSO. Table 10.2 summarizes the monitoring procedures and action levels. Lima Pond (Range L) is the only site known to have radioactive sources deployed. The Former Decon Area is located adjacent to the former radiological training area and near an area where a cobalt-60 radiation source was found in a waste pile in January 1985. No radiological training was known to be associated with the Old Water Hole.

Table 10-1
Summary of Air Monitoring Procedures

Compound	Classification/ Description	Monitored By	Monitoring Method	Action Level¹	Action Taken²
Mustard (H, HD)	CWM. Includes sulfur and nitrogen mustards, thickened mustards, and mustard mixtures	ECBC	MINICAMS® and/or DAAMS	0.003 mg/m ³	Concentrations above this action level require respiratory protection for exposed personnel regardless of their location.
Lewisite (L)	CWM. Includes Lewisite as well as Lewisite/mustard mixtures.	ECBC	MINICAMS® and/or DAAMS	0.003 mg/m ³	Concentrations above this action level require respiratory protection for exposed personnel regardless of their location.
Sarin (GB)	CWM. Potentially lethal Nerve Agent.	ECBC	MINICAMS® and DAAMS	0.0001 mg/m ³	Workers must wear respiratory protection above this concentration.
Cyanogen Chloride (CK)	Industrial. Used as chemical warfare agent – Blood Agent.	ECBC	MINICAMS®	0.1 ppm	Concentrations above this level require workers in area to wear respiratory protection.
Chloropicrin (PS)	Industrial. Component in CAIS kits.	ECBC	MINICAMS®	0.1 ppm	Concentrations above this action level require respiratory protection for exposed personnel regardless of their location.
Phosgene (CG)	Industrial. Component in CAIS Kits.	ECBC Parsons	MINICAMS® and Detector Tube	0.1 ppm	Concentrations above this action level require respiratory protection for exposed personnel regardless of their location.
Volatile Organic Compounds (VOCs)-- Non-specific	Industrial. From decontamination solutions used on these sites.	Parsons	PID	1 ppm for benzene, 10 ppm of total organic vapors	Concentrations above this action level require respiratory protection for exposed personnel regardless of their location.

1 mg/m³ = milligrams of contaminant per cubic meter of air and ppm= parts (by volume) of contaminant per million parts of air used either TLV® or Army's Airborne Exposure Limit (AEL).

2 Notify PSHO of any exceedence of action levels.

MINICAMS® = Miniature Chemical Agent Monitoring System

DAAMS = Depot Area Air Monitoring System

Table 10.2
Summary of Radiation Monitoring Procedures

Isotope	Classification/Description	Monitored By	Monitoring Method	Action Level	Action Taken
Cobalt 60	Radioactive isotope, Gamma photon emitter	Parsons or HFA	Geiger-Mueller counter, or equivalent	1 mR/hr	Move workers away from source and place barrier tape around area. Contact health physicist (RSO) for instructions before continuing work

SECTION 11.0 HEAT AND COLD STRESS

11.1 HEAT STRESS

11.1.1 Sweating does not cool the body unless the sweat is evaporated from the body. During the field investigation activities at Pelham Range a number of the site personnel may be required to wear semi-permeable or impermeable personal protective equipment (PPE). The use of this personal protective equipment (PPE) reduces the body's ability to eliminate large quantities of heat because the evaporation of sweat is decreased. The body's effort to maintain an acceptable temperature may become impaired and this may cause heat stress. Increased body temperature and physical discomfort also promote irritability and a decreased attention to the performance of hazardous tasks. If semi-permeable and impermeable PPE is used at these sites, heat stress is a **MAJOR HAZARD** to involved site workers.

11.1.2 Heat stress related problems include heat rash, fainting, heat cramps, heat exhaustion, and heat stroke. Heat rash occurs because sweat is not evaporating, making the skin wet most of the time. Standing erect and immobile in the heat allows blood to pool in the lower extremities. As a result, blood does not return to the heart to be pumped back to the brain and fainting may occur. Heat cramps are painful spasms of the muscles due to excessive salt loss from profuse sweating. Heat exhaustion occurs due to the large fluid and salt loss from profuse sweating. A person's skin is clammy and moist; and nausea, dizziness, and headaches may occur.

11.1.3 Heat stroke occurs when the body's temperature regulatory system has failed. Skin is hot, dry, red, and spotted. The affected person may be mentally confused, delirious, and convulsions may occur. A person exhibiting signs of heat stroke should be removed from the work area to be shaded area immediately. The person should be soaked with water and fanned to promote evaporation. Medical attention must be obtained immediately. **EARLY RECOGNITION AND TREATMENT OF HEAT STROKE ARE THE ONLY MEANS OF PREVENTING BRAIN DAMAGE OR DEATH.**

11.2 WORK/REST SCHEDULE

11.2.1 The management of risk for heat stress exposures centers around the principal of job-specific controls. Controls that will be implemented at Pelham Range to reduce the potential for worker heat strains includes: use of acclimated workers, providing adequate replacement fluid, educating workers to recognize the early symptoms of heat stress, use of cooling vest, physiological monitoring, and developing a work/rest schedule that will prevent the onset of heat strain. When the ambient temperature exceeds 72°F the SSHO will institute a work/rest regime. Work periods for down range workers will not exceed the maximum times specified in table 11.1. As a minimum, rest periods will be 15 minutes. Based on the results of physiological monitoring and worker observations (see below) the SSHO can decrease the work duration or increase the rest period.

Table 11.1
Maximum Work Duration

Adjusted temperature ^{(a)(b)}	Duration using Level D/Modified Level D ensembles (minutes)	Duration using levels C, B, or A ensembles (minutes)
90°F or above	45	15
87.5-90°F	60	30
82.5-87.5°F	90	60
77.5-82.5°F	120	90
72.5-77.5°F	150	120

From NIOSH/OSHA/USEPA/USCG publication Occupational Safety and Health Guidance Manual for Hazardous Waste Sites (1985)

- (a) For work levels of 250 kilocalories/hour.
- (b) Calculate the adjusted air temperature (ta adj) by using the equation:

$$ta\ adj = ta + (13 \times \text{percent sunshine})$$
 where: ta is the air temperature in °F.

Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat.

Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow (100 percent sunshine = no cloud cover and a sharp, distinct shadow; zero percent sunshine = no shadows.)

11.2.2 At the discretion of the SSHO, a WBGT maybe used to monitor for conditions that pose a threat of thermal strain to workers. WBGT monitoring should be conducted by the SSHO when workers are dressed in level D or modified level D ensembles and the ambient temperature exceed 75° F. Once the WBGT has been determined, the SSHO can estimate workers' metabolic heat load using table 11.2 and 11.3 to determine the appropriate work/rest regimen. Modification to the work/rest schedule can be instituted by the SSHO based on physiological monitoring data (see below). The values outlined in the table11.3 are designed for acclimated workers clothed in a permeable work ensemble. The WBGT is not a good predictor of heat stain when impermeable ensembles are worn.

Table 11.2
Examples of Activities Within Metabolic Rate Categories

Categories	Example Activities
Resting	Sitting quietly
Light	Sitting with moderate leg and arm movement
	Using table saw
	Standing with light or moderate work (at bench or operating machine)
Moderate	Scrubbing in standing position
	Walking about with moderate lifting
	Walking on level surface while carrying 7 lb load
Heavy	Sawing by hand
	Shoveling
	Intermittent heavy lifting

From year 2000 TLVs and BEIs booklet published by ACGIH

Table 11.3
Work/Rest Schedule Base on WBGT Reading

Work – Rest Regimen	Work Load		
	Light*	Moderate*	Heavy*
Continuous work	85 F (29.5 C)	82 F (27.5 C)	79 F (26.0 C)
75% Work - 25% Rest, each hour	87 (30.6)	83 (28.5)	82 (27.5)
50% Work - 50% Rest, each hour	89 (31.5)	85 (29.5)	83 (28.5)
25% Work - 75% Rest, each hour	90 (32.5)	88 (31.0)	86 (30.0)

From year 2000 TLVs and BEIs booklet published by ACGIH

11.2.3 The worker's heart rate and temperature will be monitored by the SSHO to evaluate the effectiveness of the work/rest schedule. To monitor a worker's heart rate the SSHO will count the radial pulse or the worker during a 30-second period as early as possible in the rest period. If the worker's heart rate exceeds 110 beats per minute at the beginning of the rest period, the next work cycle should be shortened by one-third (the rest time should remain constant). If the worker's heart rate still exceeds 110 beats per minute at the next rest period, the following work cycle will be shortened again by a third.

11.2.4 A clinical thermometer or similar device should be used to measure the oral temperature of workers at the end of the work period (before drinking). If the oral temperature of a worker increases $>2^{\circ}\text{F}$ during the work period, shorten the next work cycle by one-third. If the oral temperature continues to be elevated $>2^{\circ}\text{F}$ the next work cycle will again be shortened by a third. This process will continue until elevated temperatures are not observed. (Workers can return to full duty after heart rate and temperature return to normal [usually after 15-minute rest period]). The results of worker monitoring will be recorded by the SSHO. For PPE level C or higher, a site standard operating procedure for heat stress monitoring may be used as an alternative.

11.3 EARLY SYMPTOMS OF HEAT STRESS RELATED PROBLEMS

Workers should recognize the early symptoms of heat stress. These symptoms include:

1. Decline in task performance
2. Lack of coordination
3. Decline in alertness
4. Unsteady walk
5. Excessive fatigue
6. Muscle cramps
7. Dizziness

11.4 PREVENTION OF HEAT STRESS

Proper training and preventive measures will aid in averting loss of worker productivity and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat related illnesses. To avoid heat stress, the following steps should be taken:

- Adjust work schedules.
 - Modify work/rest schedules according to monitoring requirements.
 - Mandate work slowdowns as needed.
 - Perform work during cooler hours of the day, if possible, or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Ensure workers are acclimated to weather conditions and have extensive experience in the selected level of protection.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluids intake must approximately equal the amount of water lost in sweat, e.g. 8 fluid ounces (0.23 liters) of water must be ingested for approximately every 8 ounces (0.23 kg) of weight loss. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, encourage the worker to drink more. The following strategies may be useful:
 - Maintain water temperature at 50° to 60°F (10° - 16.6°C).
 - Provide small disposable cups that hold about 4 ounces (0.1 liter).

- Have workers drink 16 ounces (0.5 liters) of fluid (preferably water or dilute drinks) before beginning work.
- Urge workers to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight.
- Train workers to recognize the symptoms of heat-related illnesses.
- Provide potassium supplements (banana or potassium chloride tablets)
- Ensure workers use cooling vests when adjusted temperature is above 72°F and workers are dressed in Levels A, B, or C ensembles.
- Rotate personnel and alternate job functions.
- Limit work hours – at Pelham Range, Level A, or other levels of protection involving semi-permeable or impermeable PPE; wear time may be reduced based on the risk assessment (wet bulb temperature and Table 11.1 should be used). Wear time for this level of dress will not exceed 8-hour days under ideal conditions.

11.5 COLD-RELATED ILLNESS

Exposure to low temperatures presents a risk to employee safety and health both through the direct effect of the low temperature on the body and collateral effects such as slipping on ice, decreased dexterity, and reduced dependability of equipment. Work conducted in the winter months can become a hazard for field personnel due to cold exposure. All personnel must exercise increased care when working in cold environments to prevent accidents that may result from the cold. The effects of cold exposure include frostbite and hypothermia. Wind increases the impact of cold on a person's body. Systemic cold exposure is referred to as hypothermia. Local cold exposure is generally labeled frostbite. Recognition of the symptoms of cold-related illness will be discussed during the health and safety briefing conducted prior to the onset of site activities during cold weather.

- **Hypothermia.** Hypothermia is defined as a decrease in a person's core temperature below 96°F. The body temperature is normally maintained by a combination of central (brain and spinal cord) and peripheral (skin and muscle) activity. Interferences with any of these mechanisms can result in hypothermia, even in the absence of "cold" ambient temperatures. The first symptom of systemic hypothermia is shivering. Maximum shivering starts when the core body temperature drops below 95°F. The next set of symptoms as the body's cooling progresses is apathy, listlessness, and sleepiness. The person remains conscious and responsive with normal blood pressure and a core temperature of 93.2°F. The person must be removed immediately to a facility with heat. As hypothermia advances beyond this point, the person has a glassy stare, slow pulse, slow respiratory rate, and may lose consciousness. Severe hypothermia starts when the core body temperature reaches 91.4°F. Finally, the extremities start to freeze and death may result.
- **Monitoring.** When the wind chill drops below 20°F (dry) or 30°F (with precipitation), monitoring of workers' body temperatures will be conducted twice per day. Core temperatures less than 95°F indicate a need for the individual to take a break and warm up. Any person who develops moderate hypothermia (core temperature less than 95°F) will not be allowed to return to work for 48 hours.

SECTION 12.0 SITE CONTROL

12.1 INTRODUCTION

Section 12 of Volume II of the Final Site Safety Submission (September 2000) discusses Site Control procedures. Information related to the Pelham Range sites is contained in this portion of the Amendment.

12.2 SITE WORK ZONES

Section 12.2 of Volume II of Final Site Safety Submission (September 2000) discusses the generalized site work zones.

12.3 SITE SPECIFIC CONTAMINANTS OF CONCERN, MCES, AND NOSES

Table 12.1 contains the sites at which CWM may be present, the CWM contaminants of concern (i.e., the chemical warfare agents and CWM previously handled and used for training at a specific site) and the associated MCEs and NOSEs for these sites. The NOSE distances under assumed worst-case meteorological conditions have been determined for each intrusive excavation or sampling area or location, and Figures 12.1 through 12.3 depict this distance for each site. These distances will be used as the public exclusion zone and NOSE distances for the exclusion zone for on-site personnel and will be calculated on a day-to-day basis and monitored hourly based on meteorological conditions as described in Section 3 of Volume I of the Final Site Safety Submission. Public access will be prohibited during any intrusive excavation or sampling activities.

12.4 MINIMUM SEPARATION DISTANCE (MSD)

12.4.1 The MSD is the minimum separation distance for unrelated personnel given unintentional detonation and the minimum separation distance for personnel (related and unrelated) for intentional detonations of conventional ordnance items. The MSD for all unrelated personnel for an unintentional detonation shall be determined by the greatest of 200 feet, the K50 distance (67 feet), or the maximum fragment throw distance (1955 feet). The team separation distance is the minimum distance between active intrusive teams. The team separation distance is determined by the greater of 200 feet or K50 (0.9-psi overpressure) distance (67 feet).

12.4.2 The sites at Pelham Range that have the potential to contain conventional ordnance are Lima Pond and the Former Decon Area. Lima Pond and the Former Decon Area are both located near the edge of a safety range fan for an inactive 12,000-ft 'tank' range. The suspected conventional ordnance and subsequent MSDs and related information for Lima Pond and the Decon Area are presented in the Amendment to the Explosive Siting Plan located in Appendix E (Volume I). Note that the exclusion zone is based on the greater of the NOSE and MSD.

12.4.3 Mitigation procedures will include evacuation of all non-essential personnel and boundary control along the perimeter of the MSD arc.

12.4.4 The UXO team separation distance of 200 feet will be used during intrusive activities, due to its greater distance than the K50 (0.9 overpressure) distance of 67 feet.

12.5 EMERGENCY PROTOCOL

Should an emergency occur while personnel are in site work zones, an audible alarm (i.e., three five-second blasts on an air horn) and/or voice messages via radios/cellular telephones will be used to alert site personnel that an emergency exists. The alarm will indicate to site personnel that work activities are to cease and to be secured, and personnel are to proceed back through the decontamination reduction corridor (if they are in the EZ or CRZ) and assemble at the off-site, upwind assembly location designated in the daily tailgate safety meeting. Appendix B, Emergency Response and Fire Prevention Plan (Volume II of the Final Site Safety Submission), contains details on this and other emergency procedures and contingencies that will be used at Pelham Range.

TABLE 12.1
CONTAMINANTS OF CONCERN, MAXIMUM CREDIBLE EVENTS (MCEs),
AND NO SIGNIFICANT EFFECTS DISTANCES FOR SUSPECT CWM SITES,
PELHAM RANGE

Site Name	Contaminants(s) of Concern	Tasks	Remarks	MCE, NOSE, and MSD
Lima Pond (Range L)	Agents HD, L; Decontaminants STB, DS-2 and DANC	6 (each)– surface water and sediment sample locations	Previous sampling of sediment and surface water indicates explosives components, and metals, negative results for CWA.	MCE = 7.1 oz. of HD in soil; NOSE = NA/NA/ <u>10M</u> No MSD
Old Water Hole	Agents HD, L, GB; Industrial chemicals CK, CG; Decontaminants STB, DS-2 and DANC	2 (est.) anomalies to be investigated 6 (est.) - Soil sample locations	Sampling has been performed for chemical agents and breakdown products-negative results. Sampling was negative for chemical agents at 15 locations.	MCE = 4.2-in. mortar, CG-filled, non-explosively configured NOSE = 103M/115M/ <u>842M</u> No MSD
Former Decon Area	Agents H, HD; decontaminants STB, DS-2 and DANC	8 (est.) – Anomalies to be investigated 12 – Soil sample locations	No previous sampling at this site.	MCE = 1 gallon HD NOSE = 3M/5M/ <u>70M</u> MSD = 596 M

Notes:

MCE = Maximum Credible Event: a possible, maximum release of contamination that could be expected, but not necessarily a worst possible case.

NOSE = The distance from the MCE beyond which no significant health effects are expected.

MSD = Minimum separation distance. The closest spacing between work groups due to OE hazards.

The number used for the exclusion zone is shown in bold.

Contaminants = CG-phosgene (choking agent), CK-cyanogen chloride (blood agent), GB-sarin (nerve agent), HD-distilled mustard (blister agent), L- lewisite (blister agent), PS-chloropicrin

- MCE/NOSE calculated using D2PC (version August 1999) using following parameters: Location - Anniston Army Depot; Season – Summer; Type of munition – 4.2inch mortar for CG, not configured for HD; Type of release – Evaporative; Stability – D; Windspeed – 1 meter/second; source strength – CG = 6.25 pounds, HD = 1 gallon; Temperature – 85°F; Type of surface – Gravel; Time of evaporation – 60 minutes.
- In the string of numbers for the NOSE, the first number is the 1% lethality distance, the second number is the No Deaths distance, and the last number (underlined) is the No Significant Effects distance, all in meters.

Figure 12.1

Lima Pond Map

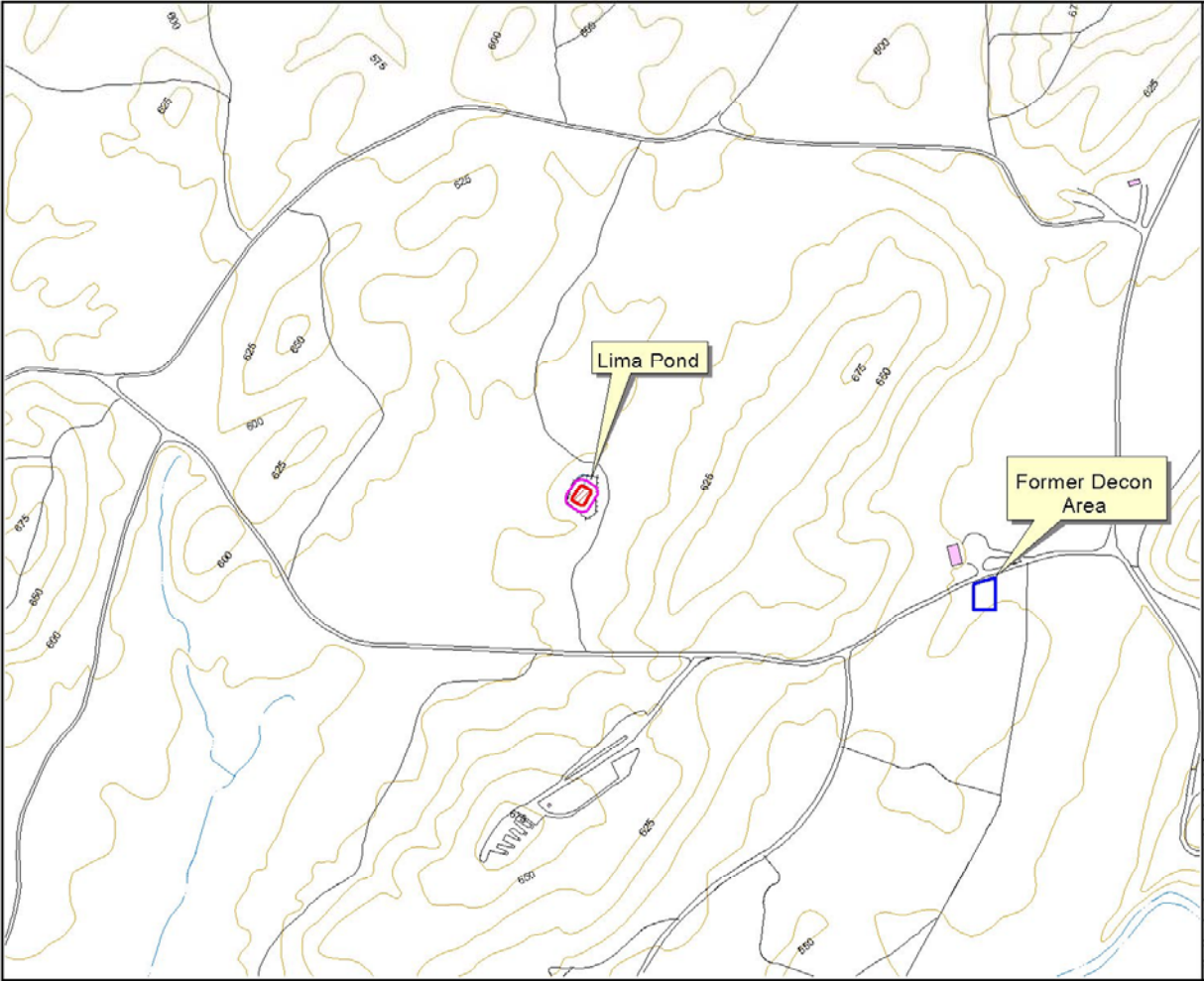
LEGEND

- Elevation Contour (5 ft Interval)
- Water Features
- Road Features
- Fence
- NOSE (10 meters)
- Geophysically Surveyed Area
- Buildings



50 0 50 100 150 200 250 300 Meters

Revised:		Date:	
SYNOPSIS:		DATE:	APPROVED:
Source: USGS 7.5' Topographic Map, 1972			
PARSONS ENGINEERING SCIENCE, INC.		U.S. ARMY CORPS OF ENGINEERS MOBILE DISTRICT	
PROJECT: PELHAM RANGE FT. MCLELLAN, ALABAMA			
Designed by:	Parsons ES	Scale:	1:4000
Drawn by:	Parsons ES	Date:	March 2002
Checked by:		Number:	1
Reviewed by:		Project #:	142393
Approved by:		Sheet:	1 of 1



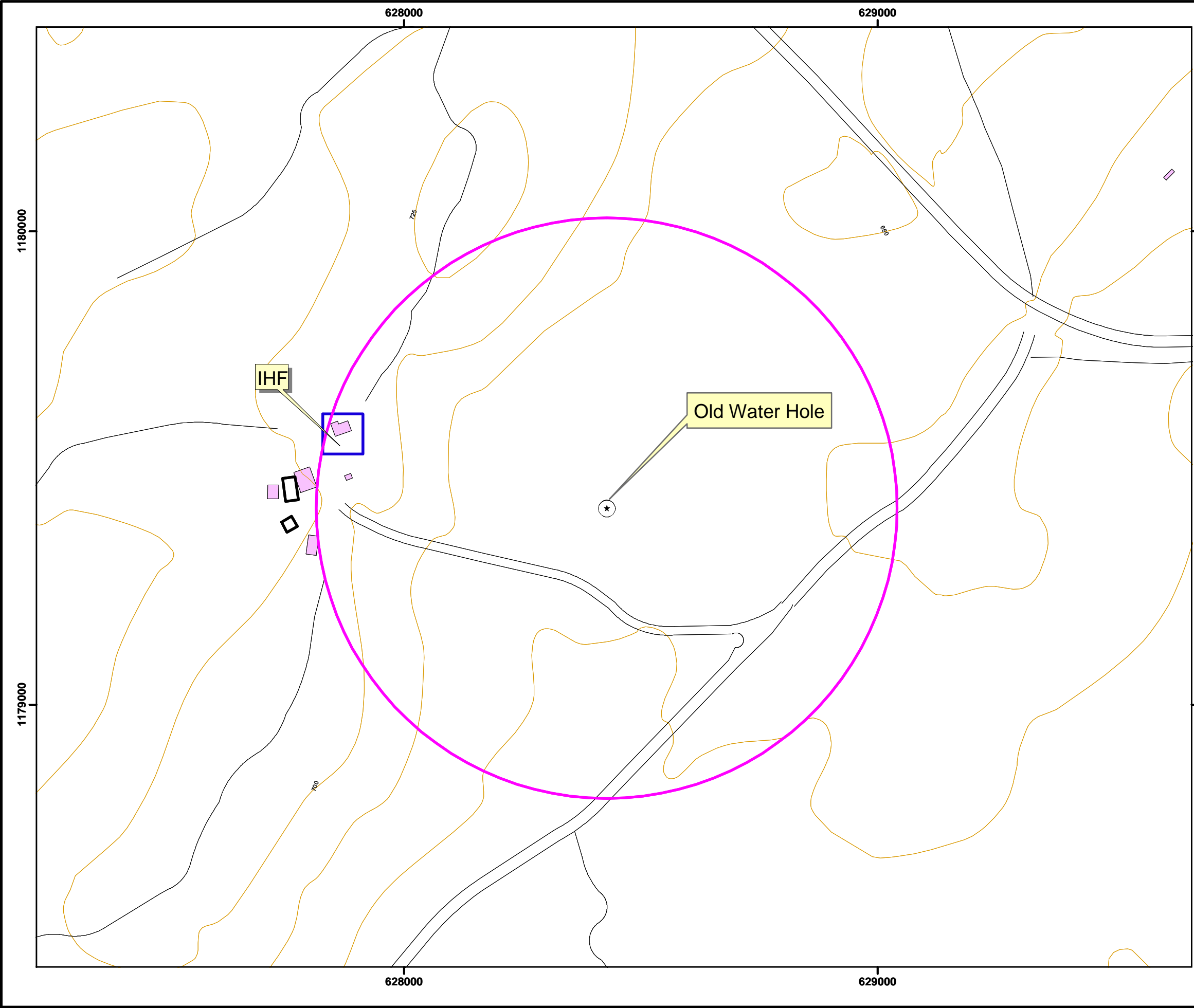
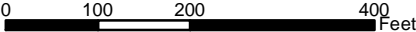


Figure 12.2

Old Water Hole Map

LEGEND

- Elevation Contour (5 ft Interval)
- Road Feature
- Fence
- NOSE (191 meters)
- Training Structure
- Building



Revisions			
Symbol:		Date:	Approved
Source: USGS 7.5' Topographic Map, 1972			

PARSONS

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT

Designed by: PARSONS	Figure 12.2 Old Water Hole Map		
Drawn by: PARSONS			
Checked by:	Scale: 1:2,500	Sheet Number: 1	Project #: 740323
Submitted by: PARSONS	Date: October 2001 <small>xsjs740323avpelham_range.apr</small>	1 of 1	

Pelham Range
Former Decon Area

10B

7A

Legend

- Contour Line
- Road
- Training Area or Subarea
- 1955 foot MSD
- Former Decon Area



500 0 500 1000 Feet

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SECTION 13.0

PERSONNEL AND EQUIPMENT DECONTAMINATION

Section 13 of Volume II of the Final Site Safety Submission (September 2000) contains a discussion of Personnel and Equipment Decontamination procedures to be used at the Pelham Range sites. Additional procedures for radiation decontamination are presented in Section 13.5 below.

13.5 RADIATION DECONTAMINATION

13.5.1 Workers leaving an area identified as containing radioactive material will be screened with a GM counter. For level D operations the SSHO will perform the worker monitoring. If radioactive dust is detected on the worker's boots, the most likely scenario, then the worker must proceed through a two-station decontamination process. The first station will involve washing the boots in a catch basin containing a detergent solution. The second station would entail rinsing the boots with water. After the washing and rinsing is completed another GM screening will be conducted to verify that the radioactive dust has been removed. The decontamination procedures for Level C, B and A operations outline in Appendix L of the Volume II, Final Site Safety Submission are adequate for the removal of radioactive dust. All liquid must be collected and disposed in accordance with local, state, and U.S. Department of Energy (DOE) requirements.

13.5.2 Equipment exiting a radioactive area must be decontaminated to reduce the spread of contamination and the potential for exposure to personnel. Decontamination should be performed as soon as activities are completed. Materials that cannot be easily cleaned or cost-effectively decontaminated should be evaluated for limited use in areas where radioactive materials have been detected. Porous items of low replacement cost, such as wood handled tools, may have to be disposed of. Expensive instrumentation (i.e., air monitoring equipment) should be wrapped in plastic before transporting into contaminated areas.

SECTION 14.0

EMERGENCY RESPONSE AND CONTINGENCY PLAN

Section 14 of Volume II of the Final Site Safety Submission (September 2000) discusses the Emergency Response and Contingency Plan. Table 14.1 shows the revised Emergency Contacts for the Pelham Range activities. Figure 14.1 shows the Route to the Hospital from the Pelham Range sites.

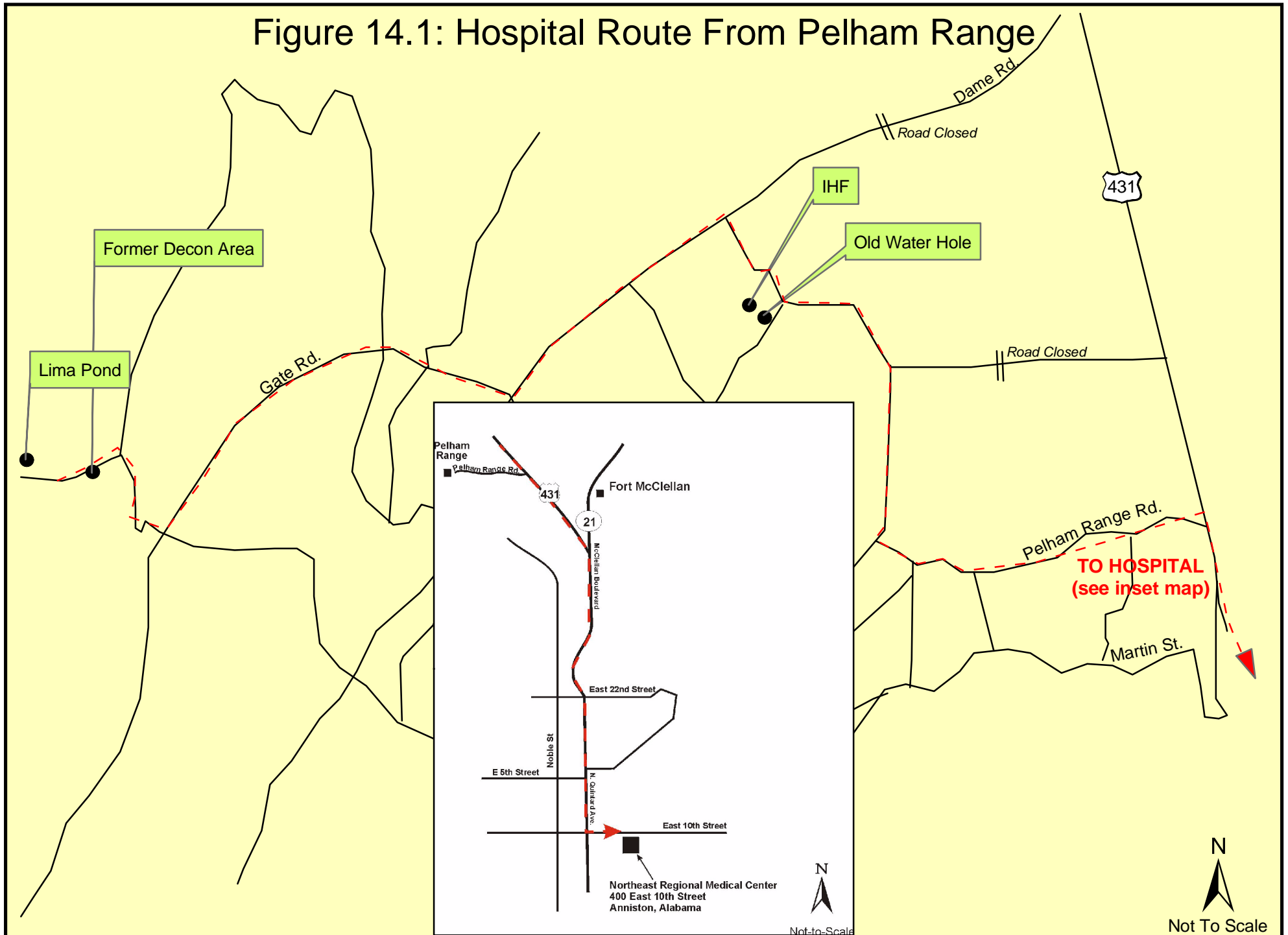
Table 14.1
Emergency Contacts

These contacts and maps should be posted prominently at the site. Should any situation or unplanned occurrence require outside assistance or support services, the appropriate contact from the following list should be made:

Agency/Contact		Telephone Number
Range Control		(256) 847-3037 ALT. 847-3038 ALT. 847-3039
Fort McClellan Transition Force	Operations – SSG Fox Security – Scott Bolton	(256) 848-4824 ALT. 282-0140 ALT. 282-0141
OMS #10 – Pelham Range	MSG Jeff Martin (Supervisor)	(256) 847-4166
UTES #1 – Pelham Range	MSG Charles Borden	(256) 847-4408 alt (256)847-4413
Game Management / Gate Security		(256) 847-4438
Police	Anniston Sheriff Department	(256) 236-6600
Fire	Anniston Fire Department	(256) 237-3541
Emergency Response (Spills/Releases-Only)	EMA Civil Defense	(256) 435-0543
Ambulance	EMTs/Ambulance	(256) 237-8572
Hospital	Northeast Regional Medical Center	(256) 235-5121 Ex. 17
Poison Control Center		(800) 288-9999
Federal Aviation Admin.	Regional Office	(404) 305-5002

Responsible Person	Telephone Number	
	Work	Home
Joseph Cudney (Parsons Project Manager)	678-969-2344	404-606-0347 mobile
Jeff Ulmer (Parsons Site Manager)	770-634-8561	770-965-9429
Ed Grunwald (Parsons Project H&S Officer)	678-969-2394	770-594-9760
Ron McConn (Parsons Radiation Protection Officer)	509-946-0415	
Rich Mahan (Parsons SSHO)	256-310-3367	850-678-2340
Douglas Rhodes (USACE Safety Specialist)	256-895-1508	256-759-3933
Dan Copeland (USACE Project Manager)	256-895-1567	
TEU - Staff Duty (24 hrs)	410-671-2773	Staff Duty Number
John Ditillo (ECBC Emergency Contact)	410-436-4679	
Mike Winningham (HFA Project Manager)	310-705-5044	
Maj. Beth Guttry (Alabama Security & K9)	256-546-3058	
Bernard Kirkland (STL Savannah Labs)	901-354-7858	
Qualisys (Dr. Mitchell)	800-874-4676,ext. 111	

Figure 14.1: Hospital Route From Pelham Range



SECTION 15.0

STANDARD OPERATING PROCEDURES, ENGINEERING CONTROLS, AND SAFE WORK PRACTICES

Section 15 of Volume II of the Final Site Safety Submission (September 2000) contains a discussion of Standard Operating Procedures, Engineering Controls, and Safe Work Practices that will be used at the Pelham Range sites.

SECTION 16.0

LOGS, REPORTING, AND RECORD KEEPING

A discussion of the Logs, Reporting and Record Keeping can be found in Section 16 of Volume II of the Final Site Safety Submission (September 2000).

No changes were required to implement the existing Appendices for the Pelham Range sites. The following Appendices can be found in Volume II of the Final Site Safety Submission (September 2000):

APPENDIX A

APPENDIX B

APPENDIX C

APPENDIX D

Current MSDS sheets will be kept on site.

APPENDIX E

APPENDIX F

APPENDIX G

APPENDIX H

APPENDIX I

APPENDIX J

APPENDIX K

APPENDIX L

APPENDIX M

APPENDIX N

APPENDIX O

APPENDIX P

APPENDIX Q

**Final
Amendment 01 to
FINAL WORK PLAN/SITE SAFETY SUBMISSION
FORT MCCLELLAN, ALABAMA
FOR
PELHAM RANGE SITE INVESTIGATION
(LIMA POND, OLD WATER HOLE, AND FORMER DECONTAMINATION
AREA SOUTH OF TOXIC GAS AREA)**

**VOLUME III
AGENCY PLANS**

**Prepared for
U.S. ARMY CORPS OF ENGINEERS, HUNTSVILLE CENTER
Mandatory Center of Expertise & Design Center
Ordnance and Explosive Waste**

**Prepared by
PARSONS ENGINEERING SCIENCE
5390 Triangle Parkway, Suite 100
Norcross, Georgia 30092**

March 2002

SECTION 1.0

INTERIM HOLDING FACILITY PLAN – PMNSCM

An Interim Holding Facility (IHF) will be used for the Pelham Range sites. The Interim Holding Facility Plan has been provided by the Product Manager for Non-Stockpile Chemical Materiel (PMNSCM). Information related to the IHF and not covered by the PMNSCM plan in this section is contained within Appendix F of the Amendment to Volume I of the Final Site Safety Submission.

SECTION 2.0

TECHNICAL ESCORT UNIT SUPPORT PLAN – TEU

Section 2 of Volume III of the Final Site Safety Submission (September 2000) contains the Technical Escort Unit Support Plan written by the Technical Escort Unit (TEU). TEU has indicated that the TEU Support Plan in the Site Safety Submission for Fort McClellan will be followed for the Pelham Range sites. An email attesting to that fact is attached to this volume.

SECTION 3.0

PROTECTIVE ACTION PLAN – MOBILE DISTRICT, CORPS OF ENGINEERS

Section 3 of Volume III of the Final Site Safety Submission (September 2000) contains the Protective Action Plan provided by the Mobile District of the Corps of Engineers. Table 3.1 shows the contaminants of concern, maximum credible events, and no significant effects distances for suspect CWM sites at Pelham Range.

TABLE 5.1
CONTAMINANTS OF CONCERN, MAXIMUM CREDIBLE EVENTS (MCEs),
AND NO SIGNIFICANT EFFECTS DISTANCES FOR SUSPECT CWM SITES,
PELHAM RANGE

Site Name	Contaminant(s) of Concern	Tasks	Remarks	MCE, NOSE, and MSD
Lima Pond (Range L)	Agents HD, L; Decontaminants STB, DS-2 and DANC	6 (each)– surface water and sediment sample locations	Previous sampling of sediment and surface water indicates explosives components, and metals, negative results for CWA.	MCE = 7.1 oz. of HD in soil; NOSE = NA/NA/ <u>10M</u> MSD = 596 M
Old Water Hole	Agents HD, L, GB; Industrial chemicals CK, CG; Decontaminants STB, DS-2 and DANC	2 (est.) anomalies to be investigated 6 (est.) - Soil sample locations	Sampling has been performed for chemical agents and breakdown products-negative results. Sampling was negative for chemical agents at 15 locations.	MCE = 4.2-in. mortar, CG-filled, non-explosively configured NOSE = 103M/115M/ <u>842M</u> No MSD
Former Decon Area	Agents H, HD; decontaminants STB, DS-2 and DANC	8 (est.) – Anomalies to be investigated 12 – Soil sample locations	No previous sampling at this site.	MCE = 1 gallon HD NOSE = 3M/5M/ <u>70M</u> MSD = 596 M

Notes:

MCE = Maximum Credible Event: a possible, maximum release of contamination that could be expected, but not necessarily a worst possible case.

NOSE = The distance from the MCE beyond which no significant health effects are expected.

MSD = Minimum separation distance. The closest spacing between work groups due to OE hazards.

The number used for the exclusion zone is shown in bold.

Contaminants = CG-phosgene (choking agent), CK-cyanogen chloride (blood agent), GB-sarin (nerve agent), HD-distilled mustard (blister agent), L- lewisite (blister agent), PS-chloropicrin

1. MCE/NOSE calculated using D2PC (version August 1999) using following parameters: Location - Anniston Army Depot; Season – Summer; Type of munition – 4.2inch mortar for CG, not configured for HD; Type of release – Evaporative; Stability – D; Windspeed – 1 meter/second; source strength – CG = 6.25 pounds, HD = 1 gallon; Temperature – 85°F; Type of surface – Gravel; Time of evaporation – 60 minutes.
2. In the string of numbers for the NOSE, the first number is the 1% lethality distance, the second number is the No Deaths distance, and the last number (underlined) is the No Significant Effects distance, all in meters.